DT 2-wire

Video Intercom System
Technical Guide

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Section1 - Introduction

System Features

- With only 2 wires (no polarity) throughout the whole installation, the 2-wire DT system is a simplified installation system with minimum wiring and powerful features. The minimum wiring drastically reduces installation times and errors. By means of FM video modulation and ASK data transmission technology, system provides better protection against interference, which guarantees best color quality at all points of the installation.
- Centralized power supply for the entire system. With advanced power management, the whole system use only one power supply, so there is no power supply needed for any Monitor or other system parts.
- Use Plug-in connectors and DIP switchers for more rapid installation.
- Flexible cable connection to wire, support in-out, branching and mixed mode.
- Multi Monitors for one apartment/house in same User Code, and automatically switching the video.
- Online searching and diagnose function for installer.
- Using PC to program and diagnose the system.

System Capacity

- Max. 4 Door Stations, or 3 Door Station plus 2 CCTV cameras, or 1 Door Station plus 6 CCTV cameras.
- Max. 32 Monitors in a system, max.4 Monitors in same User Code.
- Proximity access control function, max. 1000 user ID cards.
- Maximum 150 meters distance from Door Station to the farthest Monitor.

System Extension

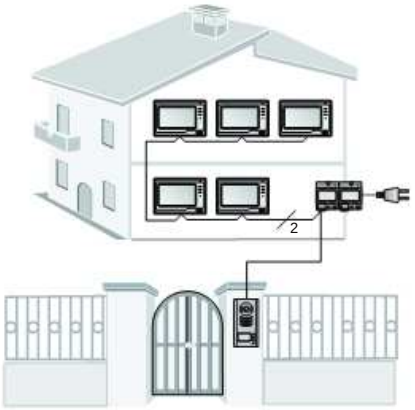
- Connect Door Strike and Exit Button to Door Station directly.
- Connect door bell and extra ringer to Monitor directly.
- Control staircase light or relay executors for second electronic lock.
- Connect up to 6 CCTV cameras by DCU unit.

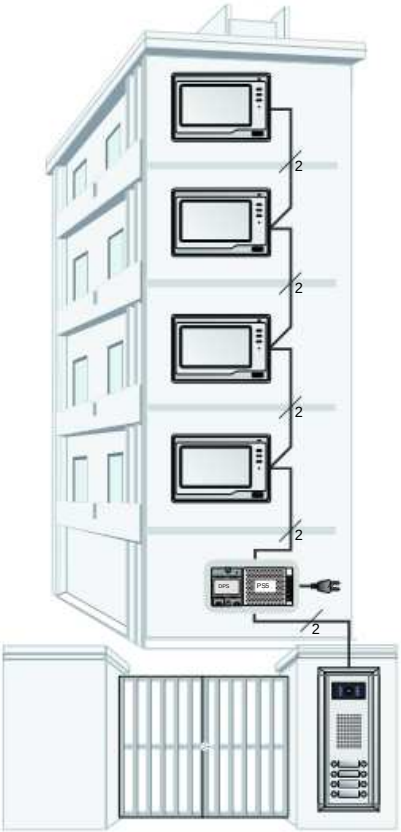
System Function

- Name list intercom
- Inner call intercom among Monitors in same Room Code
- One Monitor can be programmed as Guard unit
- Color Memo or SD card DVR function

Villa Application

Although the DT system is mainly designed for the small apartment system usage, it can be used in villa or villa group applications. Multi Monitors can be installed in a family with the same User Code, or many houses can be connected as one system, and all of these Monitors can have calling conversation each other.





Apartment Applications

This is the most common way that the system is used. One building or multi buildings can be connected as one system. Every apartment can open the door, and the users in the system can have intercom talk each other.

Door Station

Bit-4=off

DMR11/ID/D8

DMR11/D8

EP11/D24

Bit-4=on

DMR11/ID/S4

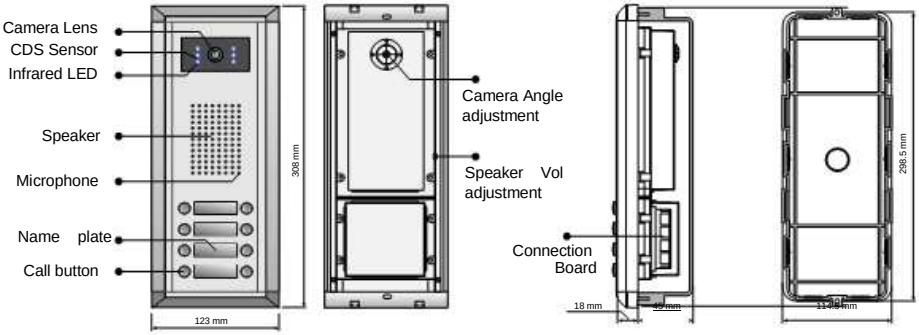
DMR11/S4

EP11/S12

Features

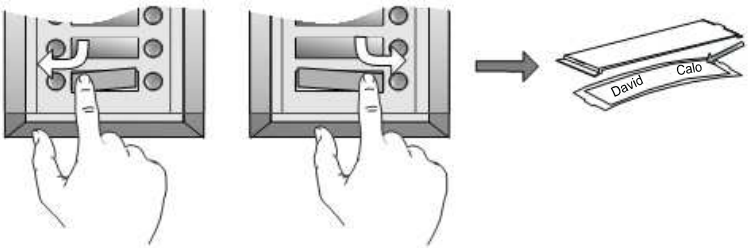
- Full anodize aluminum panel.
- SONY color CCD camera.
- camera angle adjustable.
- ID card access control
- Night-view LED with CDS light sensor.
- Backlit name plate for each button.
- Use DIP switches for multi Door Station configuration.
- Direct connect to electronic lock of 12Vdc.
- Exit button.
- USB-RS485 interface to connect to computer.
- Plug-in connector to connect bus line.
- On line Monitor search.

Parts and functions



Place Name Plate

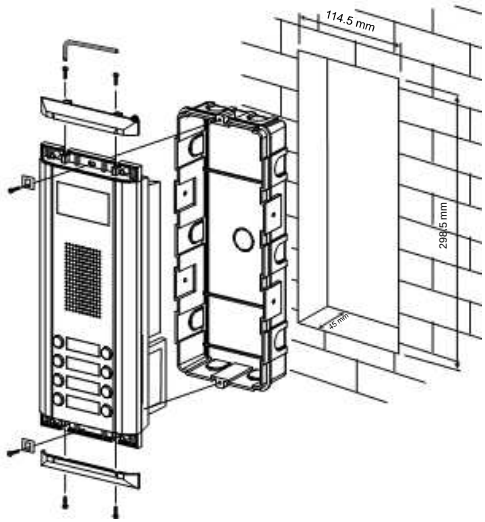
Press down and shift right/left to open the transparent name plate cover, then insert the name paper, then put the plate cover back to the panel. Note that double button line panel can be opened both direction, single button line Can only be opened at right side.



Electronic Specifications

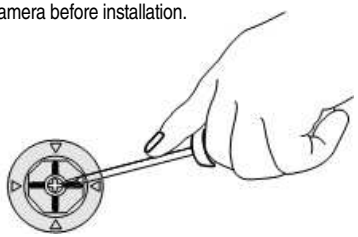
Power supply:	24Vdc(supplied by PS5)
Power Consumption:	1W in standby, 15 W in working
Unlock Power output:	12Vdc 300mA
NO, COM exchange contact:	Max. 48V dc 1.5A
Monostable relay activation time:	1 second to 10 minutes ±5%
Working temperature:	-5ºC +45ºC

Standard Installation

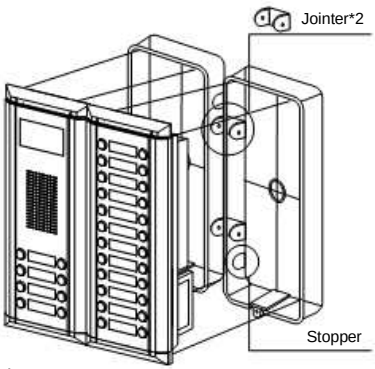


Camera Angle adjustment

Open the mounting box of the panel, use a cross screw to adjust the view angle of the camera before installation.

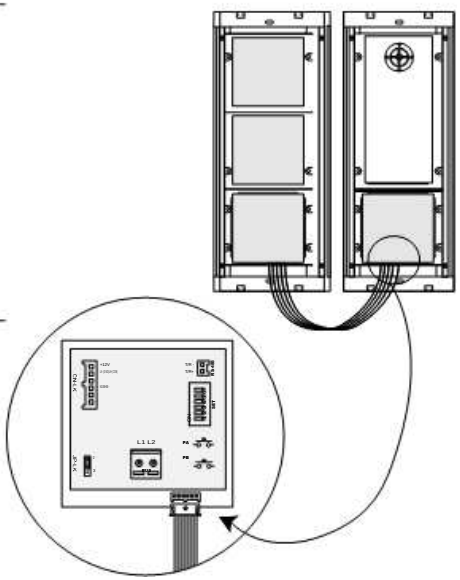


Installation with expanding panel

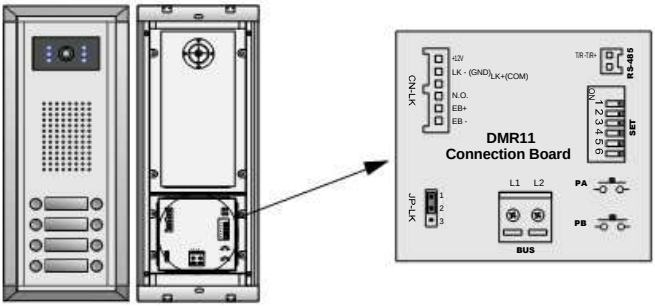


Note

The double button line expansion panel can only be connected to double button line Door Station; the single button line expansion panel can only be connected to single button line Door Station. For example, the EP11/Dx can only be connected to DMR11/Dx Door Station.



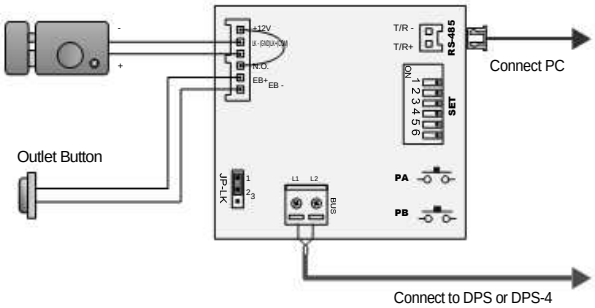
Terminal Descriptions



- **+12V:** 12VDC power output.
- **LK-(GND):** power ground.
- **LK+(COM):** electronically load activation relay contact common.
- **NO.:** electronic load activation relay normally open contact (the default setting for this terminal is NO, this terminal can be configured to NC, normally-closed contact by the DT CONFIG software). That means, by default, only the power-to-unlock type of electronic lock can be connected to the COM and NO terminal, if using the power-off-to-unlock type locks, the NO terminal must be set to NC contact by the DT CONFIG software.
- **EB+:** Exit button.
- **EB-:** Exit button.
- **JP-LK:** For electronic lock safety type setting(refer to Door Station Lock Connections).
- **T/R-:** USB-RS485 communication terminal negative.
- **T/R+:** USB-RS485 communication terminal positive.
- **SET:** DIP switches for system configurations.
- **PA:** Press once to send the name list to Monitor; press and hold for 3 seconds to add Master card.
- **PB:** Press once to search the Right line Monitor; press and hold for 3 seconds to search left line Monitor.
- **Bus(**L1,L2**):** non-polarity bus line.

Door Station wiring

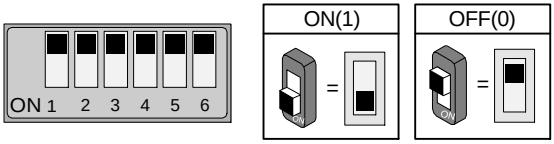
This example is one Door Station wiring, note that the lock used here is a 12Vdc 300mA power-to-unlock type.



DIP Switches settings

Total 6 bits in the DIP switches can be configured. The switches can be modified either before or after installation.

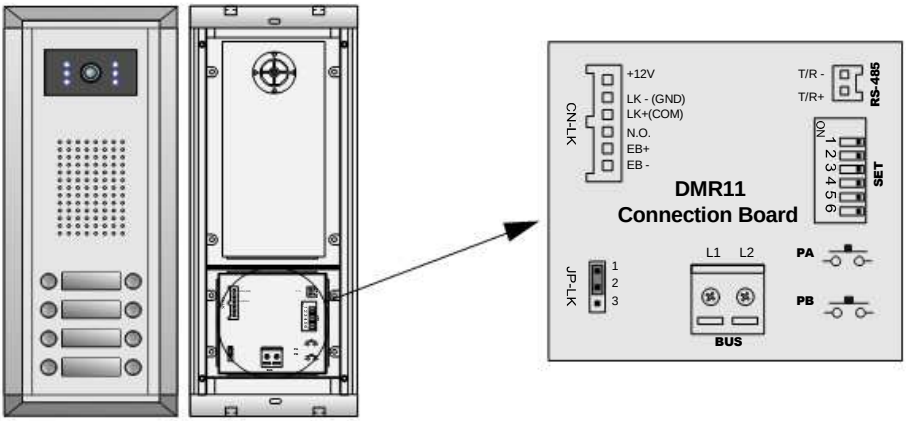
- Bit-1 and Bit 2 is for Door Station ID settings, when muti Door Stations are installed in the system, these two bit



must be set correctly, the first Door Station set to 00, the second one set to 01, the third one set to 10, the fourth one set to 11. If only one Door Station is installed, set to 00.

- Bit-3: Single line button Door Station or double line button Door Station selection. If the Door Station is a double line button, for example, the DMR11-D8, set this bit to 0, set to 1 for single line button Door Stations.
- Bit-4: Button code selection; if use the default codes for each button of the Door Station, set to 0, if use the programmed codes, set to 1.(the code for each button can be programmed by the DT CONFIG software, see the program section in this manual)
- Bit-5: Unlocking time quick selection, by default it is set to 0, for 1 second unlocking time; set to 1 for 5 seconds. (this 5 second unlocking time can be changed by DT-CONFIG software)
- Bit-6: MUST be set to off.

Bit definition	Bit state	Function Descriptions
Bit-1 and bit-2 Door Station ID setting		Default setting, ID = 0, set to the first Door Station.
		ID = 1, set to the second Door Station.
		ID = 2, set to the third Door Station.
		ID = 3, set to the fourth Door Station.
Bit-3 User ID select		Default setting for using a double line button Door Station.
		when using a single line button Door Station.
Bit-4 Button line select		Default setting for using the default codes of the button.
		using the programmed codes of the button.
Bit-5 Unlocking time quick select		Default setting, unlocking time = 1 second.
		Unlocking time = 5 seconds.(can be changed by software)
Bit-6 Function reserved		Working state.
		Function reserved.

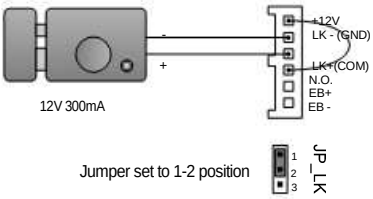


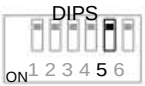
1. Direct lock connection

Use the power of the system to supply for the electronic lock, so that the lock can connect to the Door Station directly, without an additional power supply for the electronic lock. Note that the Door Station can only output a 12Vdc power; therefore the kind of lock used is limited.

- The rated power of the lock must be less than 12Vdc 300mA when using direct lock connection method.
- The GND must connect to the negative of the lock, and the COM connects to the positive.
- Jumper set to 1-2 position for Power-to-Unlock safety type; set to 2-3 position for Power-off-to -Unlock type(in this case the *Unlock Relay* mode should be set to Normally Closed on DT CONFIG software)
- The 5th bit of the DIP switches is for the unlocking time setting, its set to off by default, for 1 second unlocking time. If set this bit to on, the unlocking time is 5 seconds.
- If different unlocking time is needed to be configured, the DT CONFIG software can be used to change the *Unlock Timing* on the *Parameter* tab(see the program section).

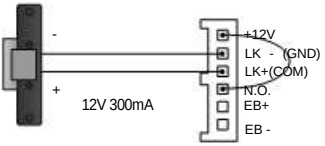
A. Connection for Power-to-Unlock type:





DIPS-5: default set to off, unlocking time is 1 second. (In most cases, 1 second is work for Power-to-Unlock type)

B. Connection for Power-- off-to-Unlock type:



DIPS-5: set to on,
unlocking time is 5 seconds.

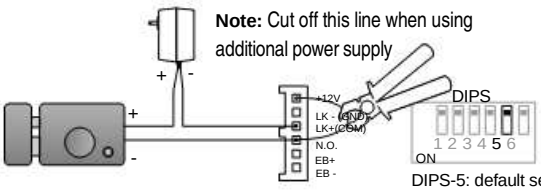
Jumper set to 2-3 position
set to Normally Closed on the
Unlock Relay mode on DT software.

2. Additional power supply

When the electronic lock is over 12 Vdc, additional power supply for the lock is needed.

- The power supply for the lock must be less than 48Vdc 1.5A.
- The Jumper must be removed when using additional power supply. The default is set for Power-to-Unlock type(*Normally open*), if use Power-off-to-Unlock type, change the Unlock Relay mode to *Normally closed* on the *Parameter* tab of DT CONFIG software.
- If different unlocking time is needed to be configured, please use the DT CONFIG software to change the setting on the *Parameter* tab(see the program section).

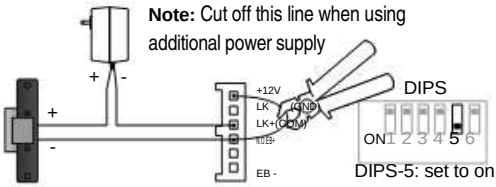
C. Connection for Power-to-Unlock type:



DIPS-5: default set to off,
unlocking time is 1 second.
(In most cases, 1 second is
work for Power-to-Unlock type)

Remove the Jumper
set to Normally Open on the
Unlock Relay mode.(default)

D. Connection for Power-- off-to-Unlock type:



DIPS-5: set to on,

unlocking time is 5 seconds.

Remove the Jumper
set to Normally Closed on the
Unlock Relay mode on DT software.

Proximity ID Card Operation

- Up to 1000 user cards can be registered by the Door Station.
- Easy management with LED state and Sound hint.
- There are two master cards, one *MASTER CARD ADD* card and one *MASTER CARD DELETE* card, When adding a new master card, the old one will be replaced automatically.
- Card reading distance is from 3 to 5 cm.

The Master cards are necessary when you add or delete user cards, Please keep the Master cards carefully. However, it is much easier to manage the ID cards using DT-CONFIG software.

DMR11/ID/D8

How to add user cards:

Show the *MASTER CARD ADD* card in standby.
Note. sounded Di~,Di

→

Show the cards to be added, one by one.
Note. Long beep if add success, two long beep if repeated.

→

Show the *MASTER CARD ADD* card again to exit.
However, will exit if no card was showed within 15s.

How to delete user cards:

Show the *MASTER CARD DELETE* card in standby.
Note. sounded Di~,Di

→

Show the cards to be deleted, one by one.
Note. Long beep if deleted successfully

→

Show the *MASTER CARD DELETE* card again to exit.
However, will exit if no card was showed within 15s.

How to delete all user cards(formatting):

Show the *MASTER CARD DELETE* card in standby.
Note. sounded Di~,Di

→

Show the *MASTER CARD ADD* card to run format operation.

→

Show the *MASTER CARD ADD* card again within 3 seconds to confirm the Format operation.

Authorize master cards:

When Door Station is in standby, press *PA* button and hold for 3 seconds to get into the master card manage state

→

Show the card to be authorized as *MASTER CARD ADD* , you will hear a long beep*1

→

show the card to be authorized as *MASTER CARD DELETE* , and then the Reader willexit out automatically.

Add user cards by Room:

Show the *MASTER CARD ADD* card in standby → Press a certain button on the Door Station, then show the cards which to be assigned to this Room. Then press another button and show the cards..... → Show the *MASTER CARD ADD* card again to confirm and exit.

Delete user cards by Room:

Show the *MASTER CARD DELETE* card in standby → Press the button(s) that the cards belong to on the Door Station.(all cards belong to the room will be deleted) → Show the *MASTER CARD DELETE* card again to confirm and exit.

Note 1: The *MASTER CARD ADD* card must be showed before the Reader can get in to the Authorize DELETE Card state, and make sure each operation have to take place within 10 seconds, or the Door Station will return to normal state automatically.

Card management should hints

State	Operation	Sound hint
standby state	show user card(registered)	a long 'D~.' (door opens)
	show user card(not-registered)	3 short 'Di' (Di, Di ,Di)
Card management state	Enter the card management state	a long 'Di~' + a short 'Di' (Di~ Di)
	Exit out the card management state	2 short 'Di' (Di ,Di)
	Add card/Delete card/Format successful	a long 'Di~' (Di~)
	Add a already existed card	2 long 'Di~' (Di~, Di~)
	Add card/Delete card/Format unsuccessful	3 short 'Di' (Di, Di, Di)
	Add a debug card(16666666)	4 short 'Di' (Di, Di ,Di, Di)
	Add card failure (1000 cards registered)	5 short 'Di' (Di, Di ,Di, Di, Di)

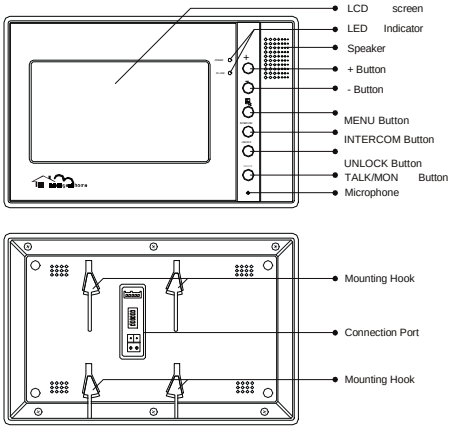
Card management LED hints

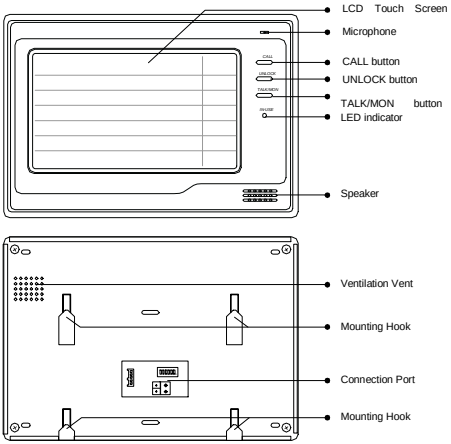
State	LED-A	LED-B	LED-C	LED-D
Standby	ON	ON	ON	ON
Authorize ADD-Card	ON	OFF	OFF	ON
Authorize DELETE-Card	OFF	ON	OFF	ON
Add user card	ON	OFF	OFF	OFF
Delete user card	OFF	ON	OFF	OFF
Format	ON	ON	OFF	OFF

DMR11/ID/D8

Monitor

Features



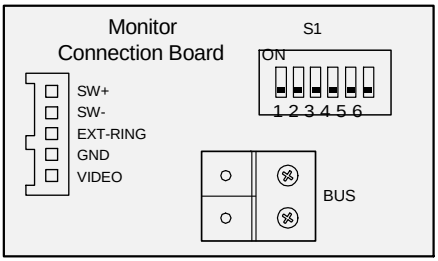


- Touch screen optional.
- 128 pieces color picture memory optional.
- Using DIP for Monitor ID setting.
- Using plug-in connector.
- On screen namelist for intercom.
- No additional power supply needed(supplied by system).
- TV-OUT function for connecting the TV.
- Additional door bell call button
- External ringer connection

Electronic Specifications

Power supply:	24Vdc(supplied by DPS)
Power Consumption:	1W in standby, 10 W in working
Working Currency:	Max.30mA in standby, 500mA in working
TV output signal:	$1V_{p\text{-}p}$ CVBS
External Ringer:	12Vdc 100mA

Terminal Descriptions



- **SW+:** Door bell call button.
- **SW-:** Door bell call button.
- **EXT-RING:** External ringer output(12Vdc 100mA)
- **GND:** Ground.
- **VIDEO:** Video signal output.

- **S1:** DIP switches for system configurations.
- **BUS:** non-polarity bus line.

Intercom function

There are three kinds of intercom function available in the DT system.

1. Guard Unit Call

A Monitor can be assigned to be the guard unit Monitor, by setting on the OSD screen of the Monitor. When the user's Monitor is in standby, press call button or intercom button, the intercom page will show up on the screen, than select and confirm 'Call Guard Unit' item, and the Monitor will call the guard unit Monitor, when the guard unit Monitor answers the call, conversation with the guard person is started.

2. Inner Call

When multi Monitors are installed in one apartment, inner call is available. Note that all Monitors should have the same User Code, and the Master and Slave address should be set on the Monitor(see page 40 for detail information).

When the Monitor is in standby, press call button or intercom button, the intercom page will show up on the screen, than select and confirm 'Inner Call' item, and other Monitors will ring at the same time. When any Monitor answers the call, other Monitors will stop ringing and go back to standby state.

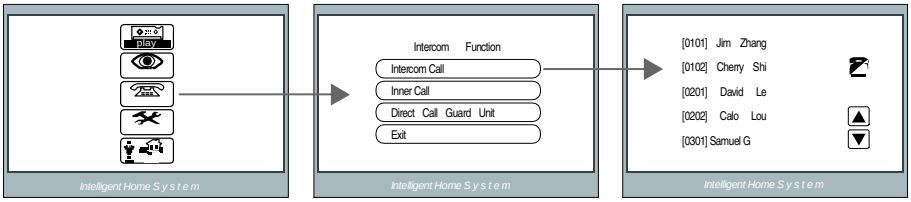
3. Intercom Call (Namelist)

The namelist intercom is for apartment to apartment calling. The user in one apartment can call other apartments by selecting the name on the screen. In this way, it's no need to remember the ID(User Code or room address) of the other users. A complete name list of all the users in the system can be upload to the Door Station by the DT CONFIG software, and then the Door Station will send the name list to all Monitors.

Step 1: Run the DT CONFIG software. Connect the USB-485 Convertor to the DMR11 Door Station and the PC, double click the software to make it running on the PC, then click the *Namelist* tap, the screen will be showed:

Step 2: Edit the namelist. In the name input field, there is a Room No. column and a *Name Label* column, each *User Code* has a corresponding *Room No.* and a *Name Label*. Input all the names in the Name label field for each User Code, and then click Download Namelist Button to download the namelist to the Door Station, and the Door Station will sent the data to all the Monitors in the system.

Step 3: Calling people using the namelist. After downloaded from the PC, every Monitor will have a built-in namelist. To access the namelist, go to the Main menu, select *Intercom* -- > *Intercom Call* to enter the intercom namelist screen(see the picture bellow), and then just select the user name to call the other apartment.



Camera Auto Switching

When multi Door Stations or CCTV cameras are installed in the system, Monitor can display the video one after another. The Monitoring time for each Station or Camera must be set by the DT-CONFIG software manually to enable the Auto Switching function(DT-CONFIG-- >Parameter-- >Camera Switching Time). Also, you can touch the icon on the screen to monitor a specific camera only.

Color Picture Memory

Total 128 pcs picture can be stored in the Monitor. User can both record the picture manually and set the Monitor to automatically record pictures.

- Manually record: when the Monitor is in monitoring or talking state(the screen is turned on), press the record icon on the touch screen or press a record button, the current picture which show on the screen will be saved into the built-in flash memory of the Monitor.
- Automatically record: A picture will be saved after 2 seconds the visitor pressed the call button on the Door Station. To enable the auto record function, go to the Main-- >Setup menu, and turn on the 'Auto Record' item.
- Pictures can be deleted manually using the touch screen.
- When the memory is full(about 128 pcs), the oldest picture will be replaced by the latest saved picture.

SD Card

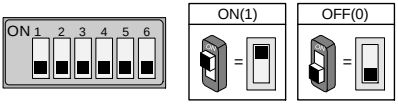
Built-in SD card reader, maximum 2 GB supported.

- Video and audio(DVR) record: Automatically or manually record can be set in need, total 4.5 hours recording time; play back on the Monitor or on the PC.
- Digital Photo frame: play back the pictures (JPEG format only) on the SD card using a slide show as photo frame.
- MP3 background music: The MP3 files on the SD card can be played as a background music.

User Code Setup

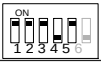
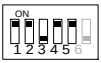
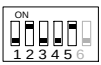
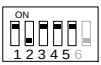
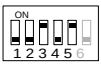
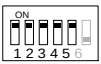
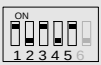
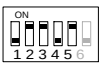
In the DT system, every apartment must have a unique identification called User Code. The DIP switches are used to configure the User Code for each Monitor.

- Bit-1 to Bit-5 are used to User Code setting. The value is from 1 to 32, which have 32 different codes for 32 apartments.
- When multi Monitors are installed in one apartment, these Monitors have to use the same User Code setting, and the Master/Slave mode should be set on the Monitor.
- Bit-6 is line terminal switch, which have to be set to ON if the Monitor is in the end of the line(bus), otherwise set to OFF. The end of the line is terminal that no other section will start from it.

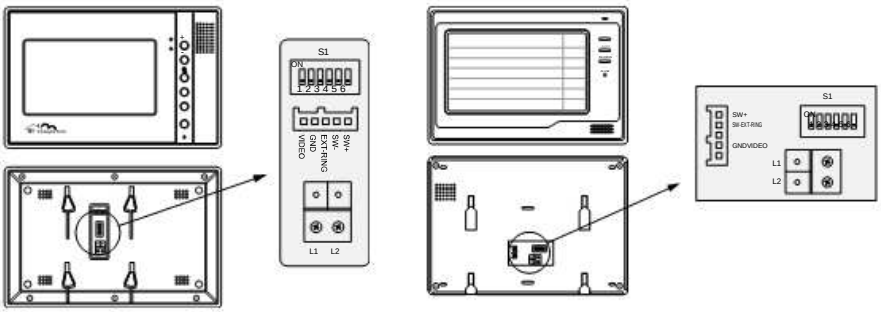


Bit-6 line terminal setting:

Bit state	Setting	Bit state	Setting
	Monitor not at the end of the line.		Monitor at the end of the line.

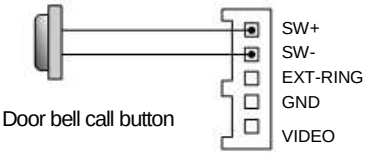
Bit state	User Code	Bit state	User Code	Bit state	User Code
	Code=1		Code=12		Code=23
	Code=2		Code=13		Code=24
	Code=3		Code=14		Code=25
	Code=4		Code=15		Code=26
	Code=5		Code=16		Code=27
	Code=6		Code=17		Code=28
	Code=7		Code=18		Code=29
	Code=8		Code=19		Code=30
	Code=9		Code=20		Code=31
	Code=10		Code=21		Code=32
	Code=11		Code=22		

Monitor Extending Connection



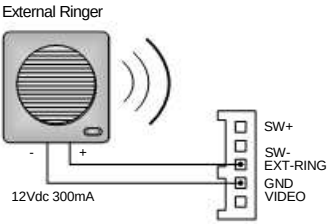
1. Door Bell Call Button

Additional door bell call button can be connected to the Monitor, so that the visitors can ring the door bell again in front of the user's apartment. When the call button is pressed, the Monitor will output ring tones but the screen will keep off, and the external ringer will ring at the same time(if a external ringer is installed).



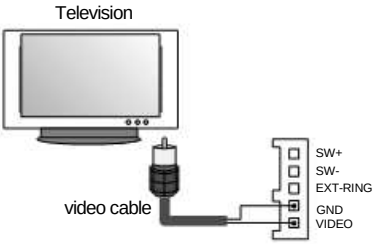
2. External Ringer

External ringer can be connected to the Monitor. The ringer will ring whenever the Door Station call button or the door bell call button is pressed, and it will stop ringing when the Monitor rejected or answered the call.



3. TV-out function

Connect television to the Monitor, when the Door Station calls, the user switch the channel to the AV channel, and the visitor's video will show up on the screen of the television. The core of the video cable must connect to the VD terminal, and the shielded layer connects to the GND.

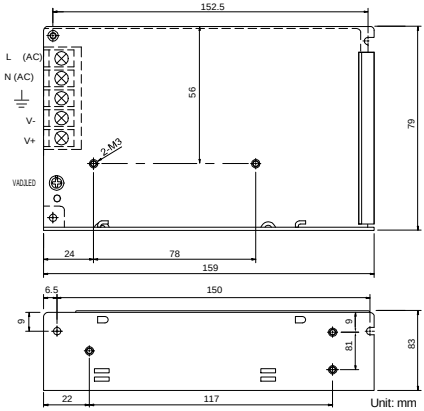


PS5 - Power Supply

The PS5 power supply unit is designed for DT system to supply up to 32 Monitors and total 4 Door Stations at the same time.

- Universal AC input/full range.
- Multi protection: short circuit, overload, over voltage
- Cooling by free air convection
- DIN rail mounting.
- Support up to 32 Monitors
- Support up to 4 Door Stations.

Dimension and Terminal



- **L(AC):** AC input.
- **N(AC):** AC input.
- ⏚ **:** Earth Ground.

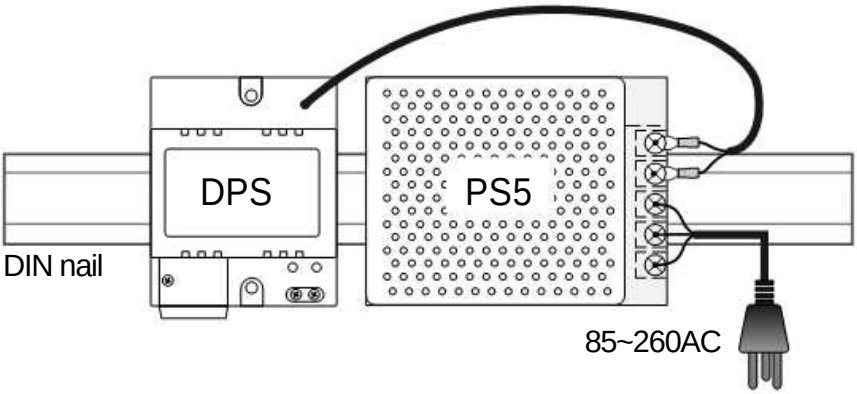
- **V-:** DC power output.(21.5~26.5 adjustable)
- **V+:** DC power output.(21.5~26.5 adjustable)

- **VADJ:** Output voltage adjustment.
- **LED:** Working state indicator.

Electronic Specifications

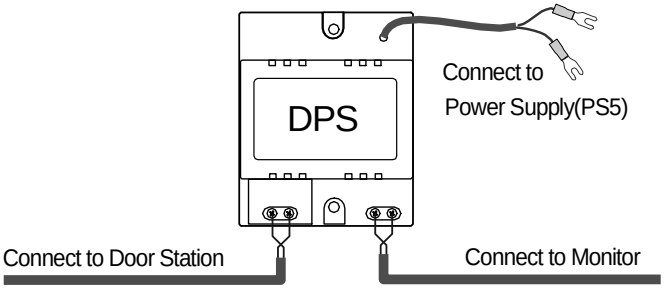
Input Voltage:	85~260Vac, 120~370Vdc
Input Frequency:	47~63 Hz
Leakage Current:	>2mA / 240Vac
AC current (TYP.)	1.5A /150Vac, 0.9A / 230Vac
Output VADJ range:	21.5~26.5 Vdc adjustable
Rated Voltage:	24Vdc
Rated Current:	3.2A
Rated Power:	76.8W

DIN Installation



DPS

DPS: This unit is a power supply adaptor for the PS5 or PS4 power supply, it transfers the power from the power supply to the suitable power for the non-polarity bus. Note that the DPS must work together with the PS5 or PS4 power supply.

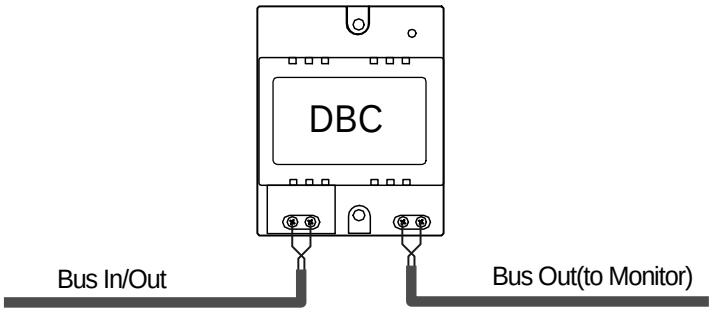


Technical Specifications(DPS)

Power input:	24Vdc (supplied by PS5)
Power output:	18Vdc
Power Consumption:	0.25W in standby, 0.5 W in acting
Working temperature:	-5ºC +45ºC

DBC

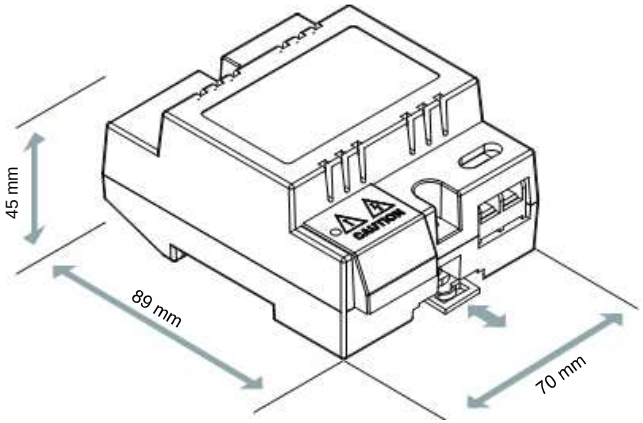
DBC: This unit is a single user distributor unit used to transfer all data between the Monitor and the Bus Line. Every Monitor(except the last one at the end of the line) needs one DBC to connect to the Non-polarity Bus Line. No extra power supply needed, and one LED indicator to show the working state.



Technical Specifications(DBC)

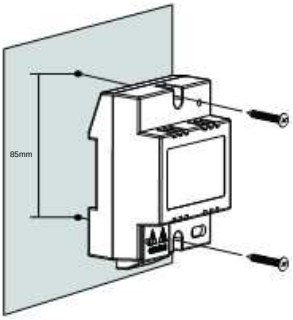
Power Consumption:	0.25W in standby, 0.5 W in working
Working temperature:	-5ºC +45ºC

DPS/DBC Dimensions



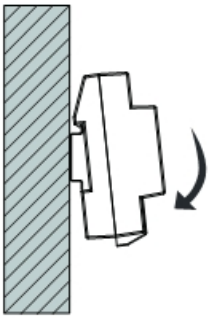
Direct Wall Mounting

Use the screws to fasten the unit on the wall directly.



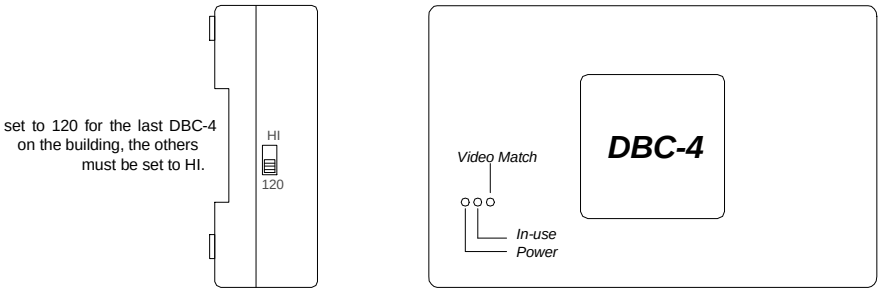
DIN Rail Mounting

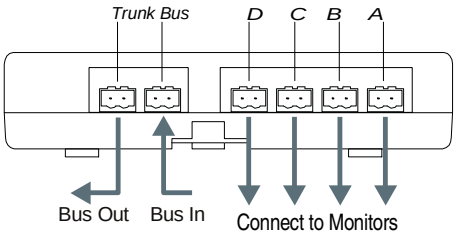
Install on the DIN Rail.



DBC-4 Unit

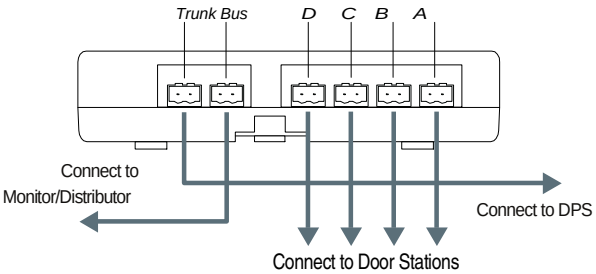
DBC-4 Distributor is a 4 output user distributor for DT system, to approach the star topology connection in the apartment system. See Section 3 Cables and Connection for detail connection information.



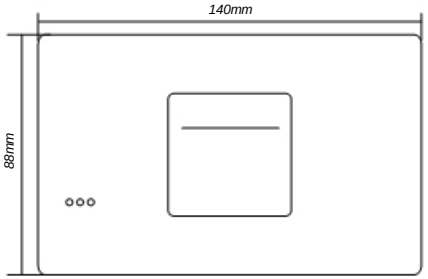


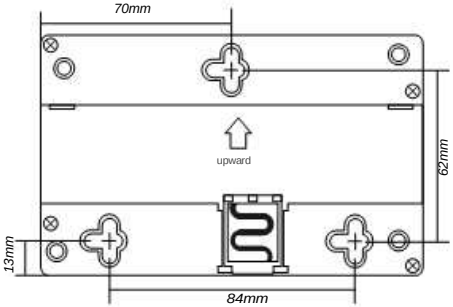
DPS-4 Unit

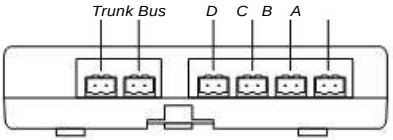
DPS-4 Unit is used to connect multi Door Stations, total 4 Door Stations can be connected to the DPS-4 unit.



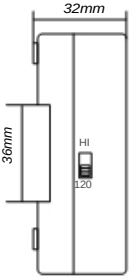
DBC-4/DPS-4 Dimensions



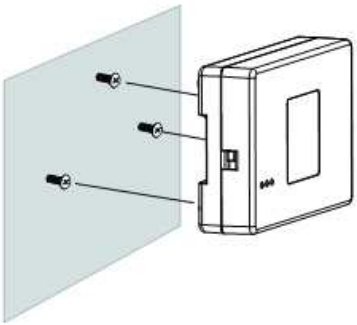




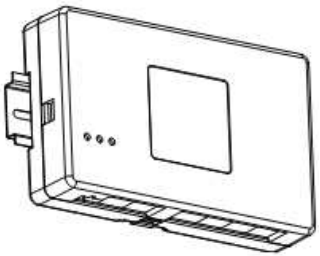
A/B/C/D port: Connect to Monitors/Door Station Trunk Bus: Bus input/output.



Direct Wall Mounting

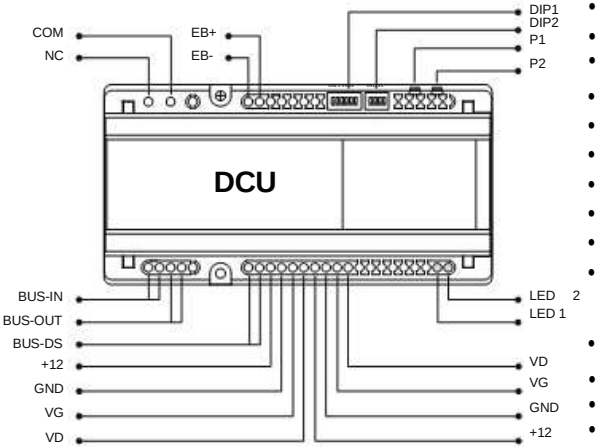


DIN Rail Mounting



DCU Unit

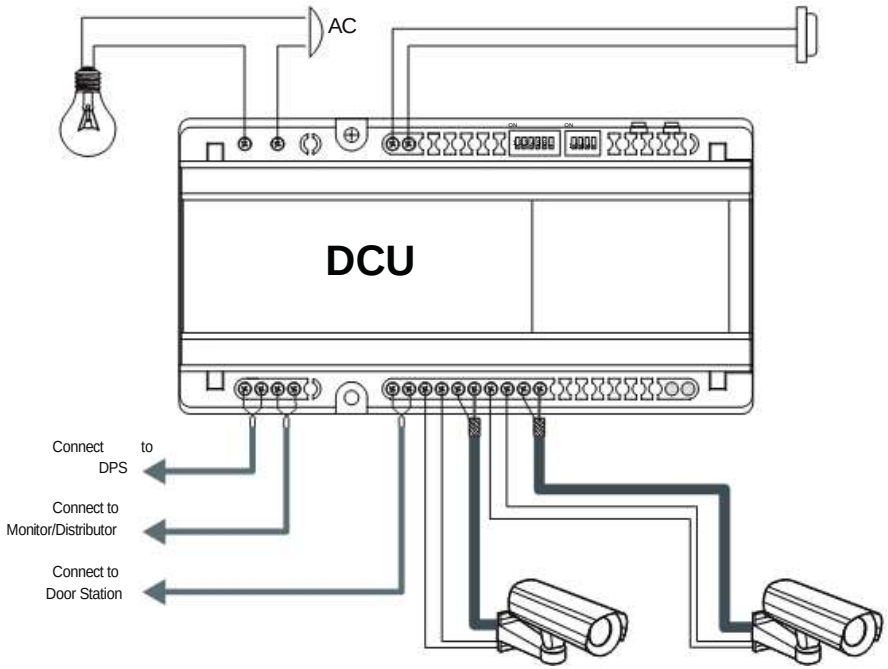
The DCU unit is a Multi function device which can connect 2 CCVT cameras and light/lock control.



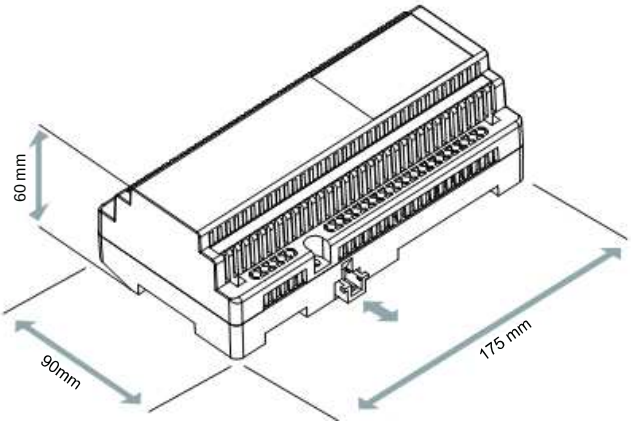
- **COM:** Contact relay Common terminal
- **NC:** Contact relay Common terminal
- **EB+, EB-:** Contact activate button
- **DIP1:** Main DIP switches
- **DIP2:** Switches for Lock/Light control **P1, P2:** Contact relay Common terminal
- **BUS-IN:** Connect to Door Station
- **BUS-OUT:** Connect to Monitors
- **BUS-DS:** Connect to Door Station
- **LED1, LED2:** Indicators

- **+12:** Power+ for CCTV camera
- **GND:** Power- for CCTV camera
- **VG:** Video Ground for CCTV camera
- **VD:** Video Core for CCTV camera

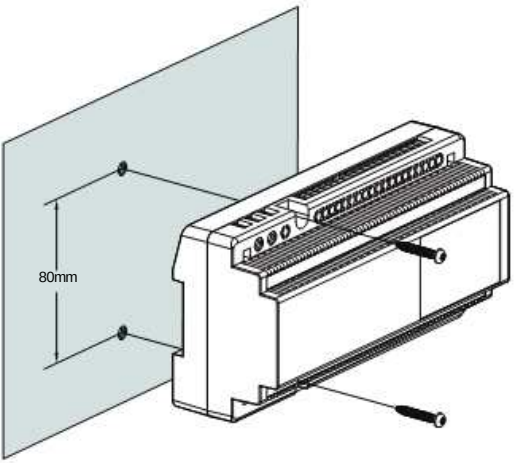
Terminal Connections



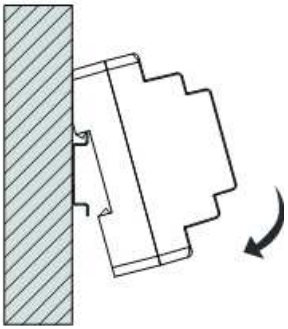
Dimensions



Direct Wall Mounting



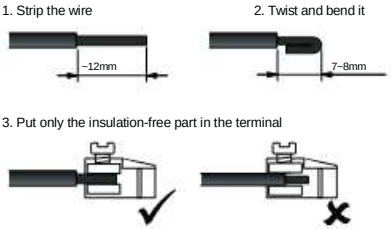
DIN Rail Mounting



General Rules for Installation

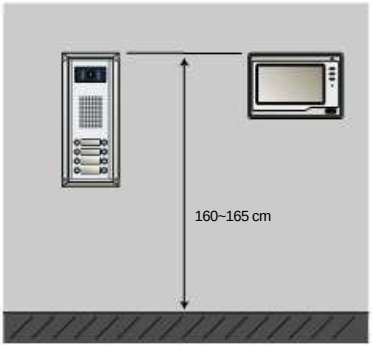
Connecting the Connectors

Before screw the wire to the plug-in connector, it's important to process the wire in the correct way. See the following steps to connect the wire.



Installation Height

The recommended installation height of both Door Station and Monitor is from 160~165 cm.



Door Station Install Condition

The Door Station cannot be installed in a place that hard/large light sources can cover the lens of the camera(for example, the street light or Sun light), otherwise the video image will have lower contrast. If there is no way to avoid this condition, the alternative is to install the Door Station in a higher position and then adjust the camera angle towards down to keep the lens away from the light source.

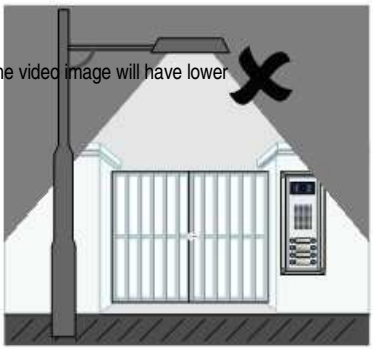
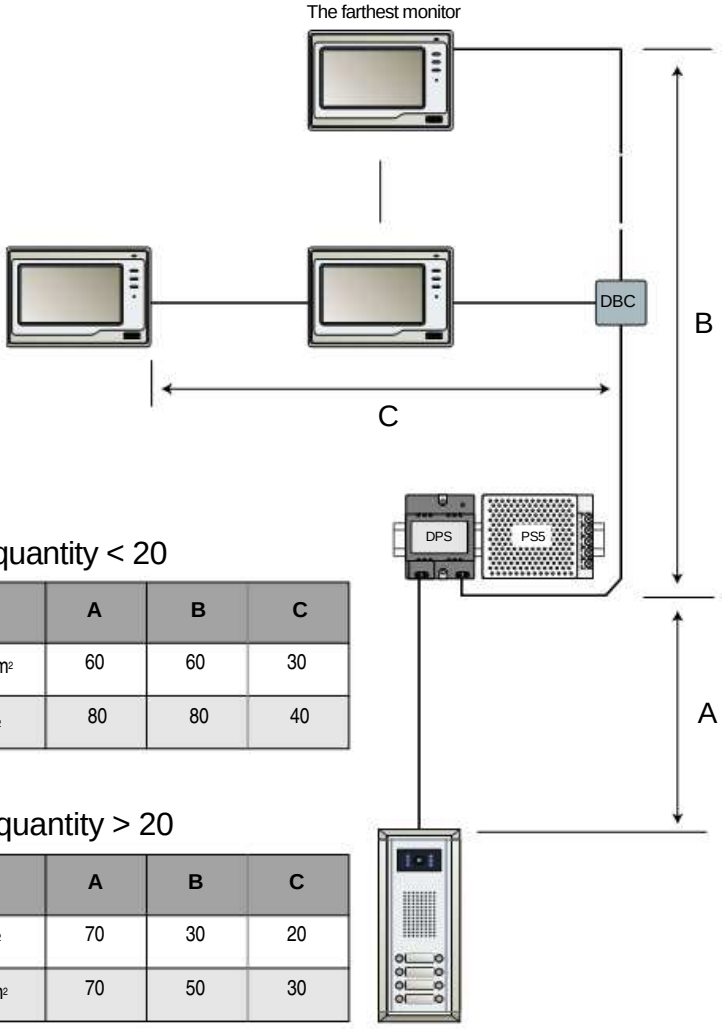


Table of Cables and Distance

The maximum distance of the wiring is limited in the DT system. Using different cables may also affect the maximum distance the system can reach.



When Monitor quantity < 20

Cable Usage	A	B	C
Twisted cable 2x0.75 mm²	60	60	30
Twisted cable 2x1 mm²	80	80	40

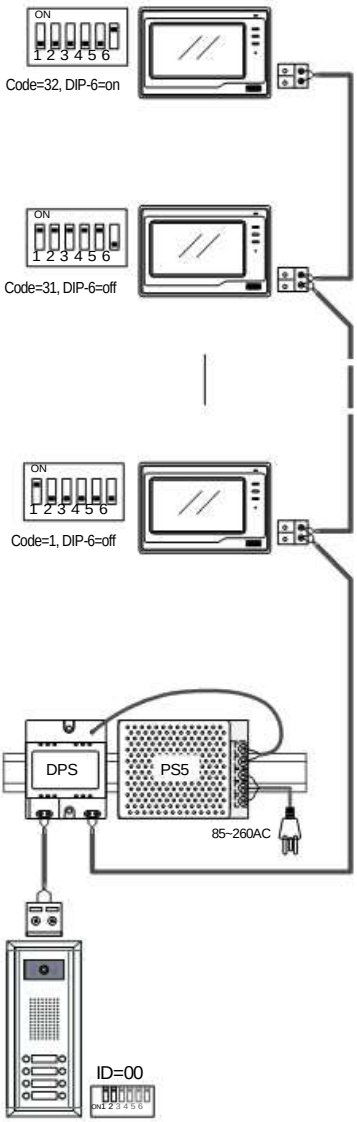
When Monitor quantity > 20

Cable Usage	A	B	C
Twisted cable 2x1 mm²	70	30	20
Twisted cable 2x1.5 mm²	70	50	30

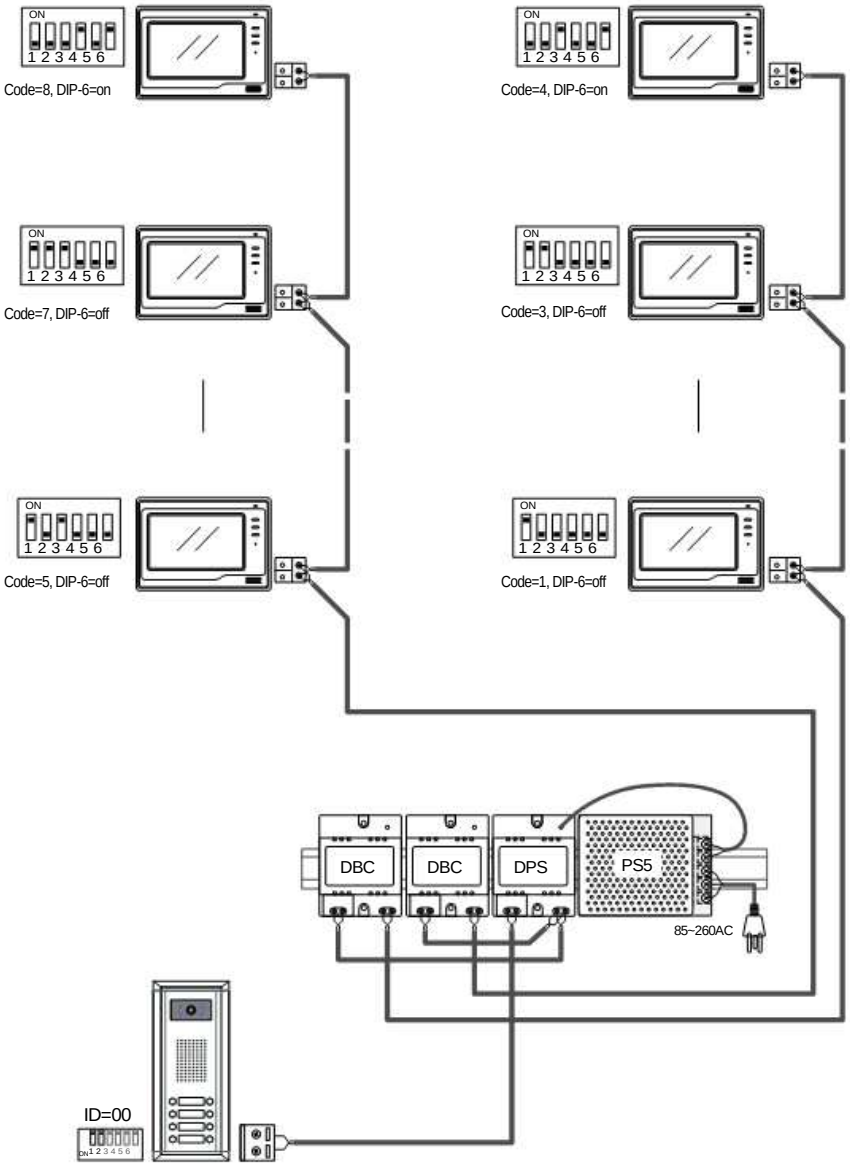
The wire for the Non-polarity bus MUST non-shielded! And using the twisted wire is recommended, if using the Non-twisted wire, the total distance will be half.

System Wirings and Connections

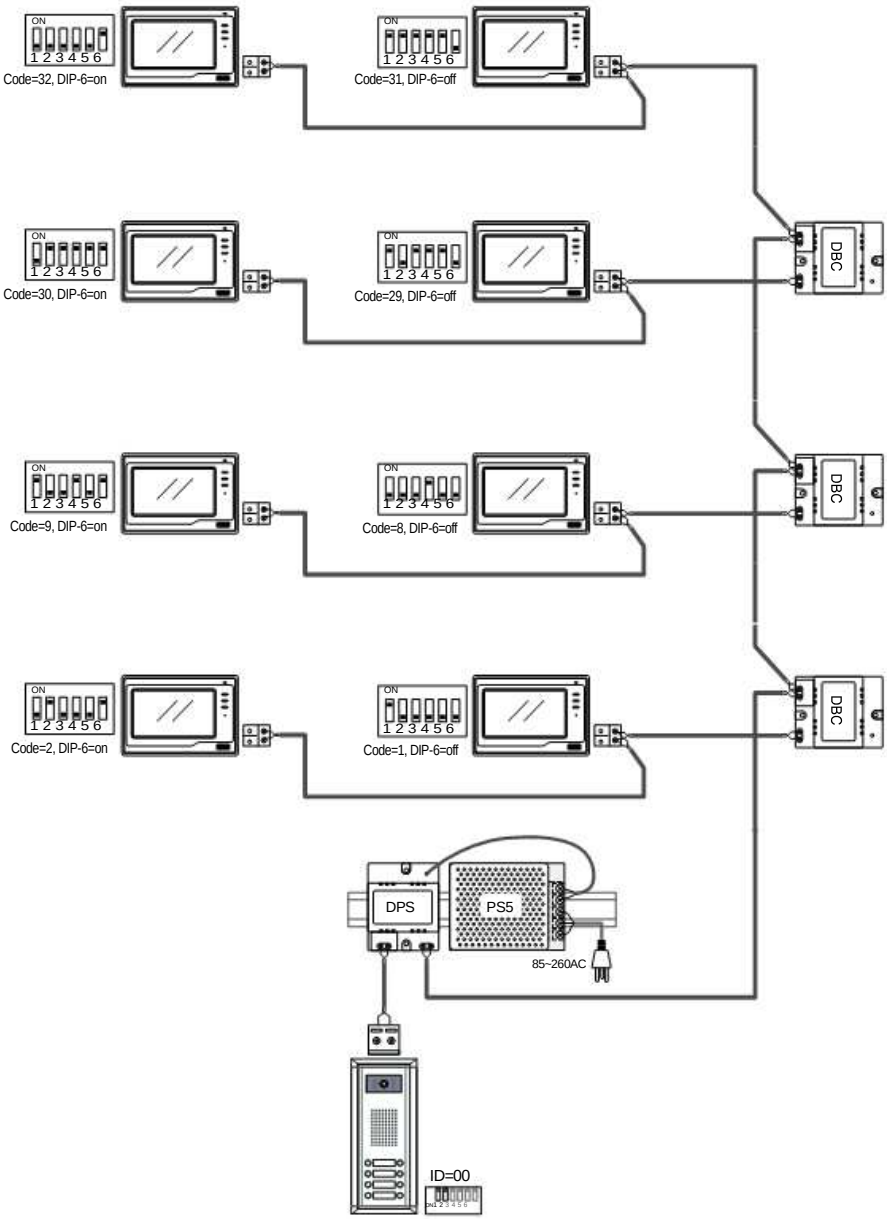
1. Basic IN-OUT wiring mode



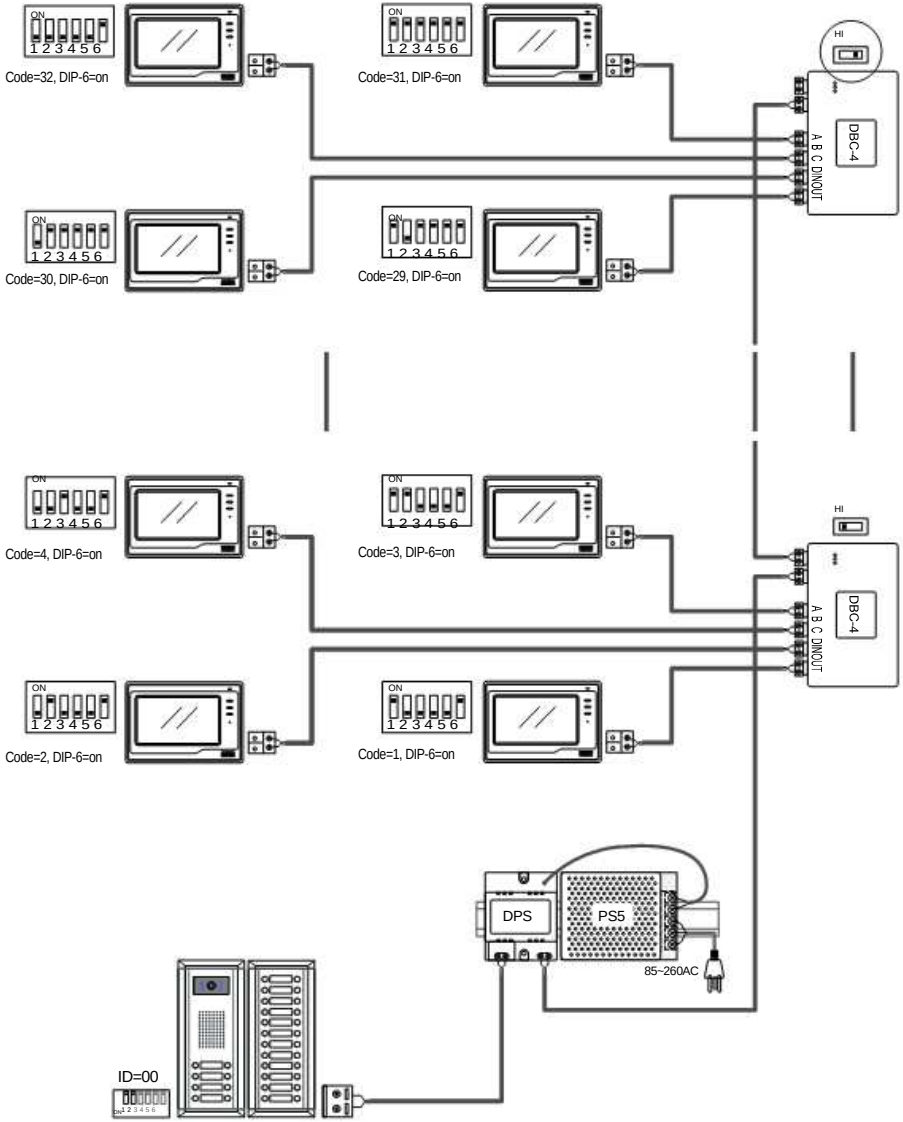
2. Basic IN-OUT wiring mode (1~n risers)



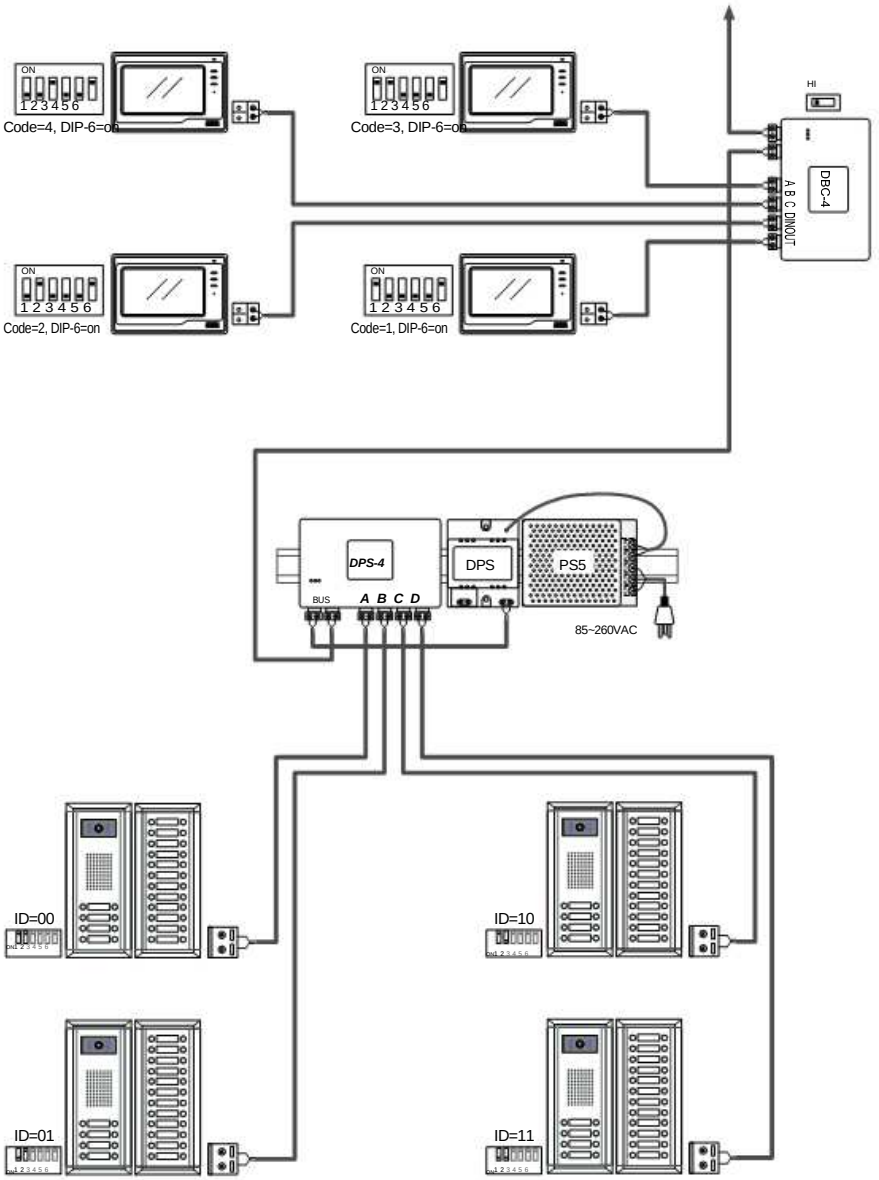
3. IN-OUT wiring with One-user distributor



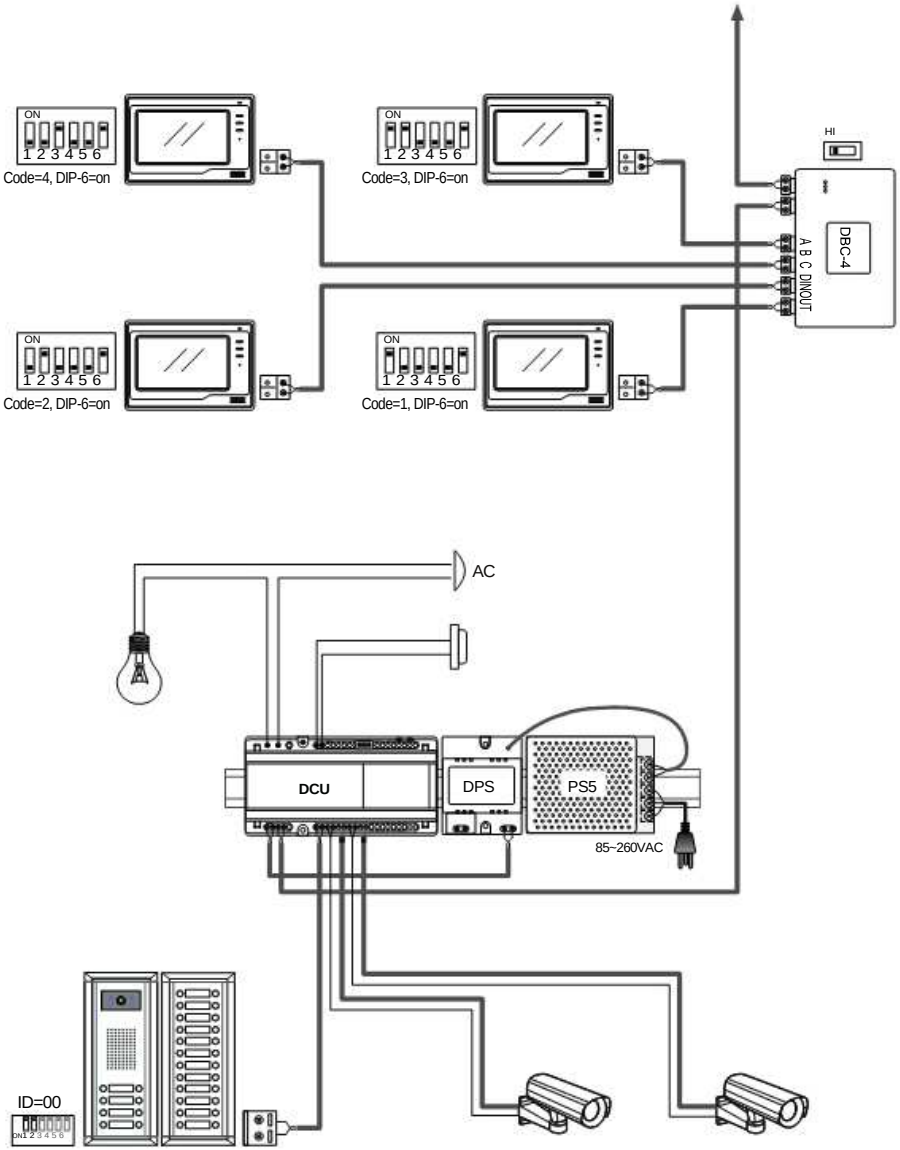
4. Basic Star wiring mode



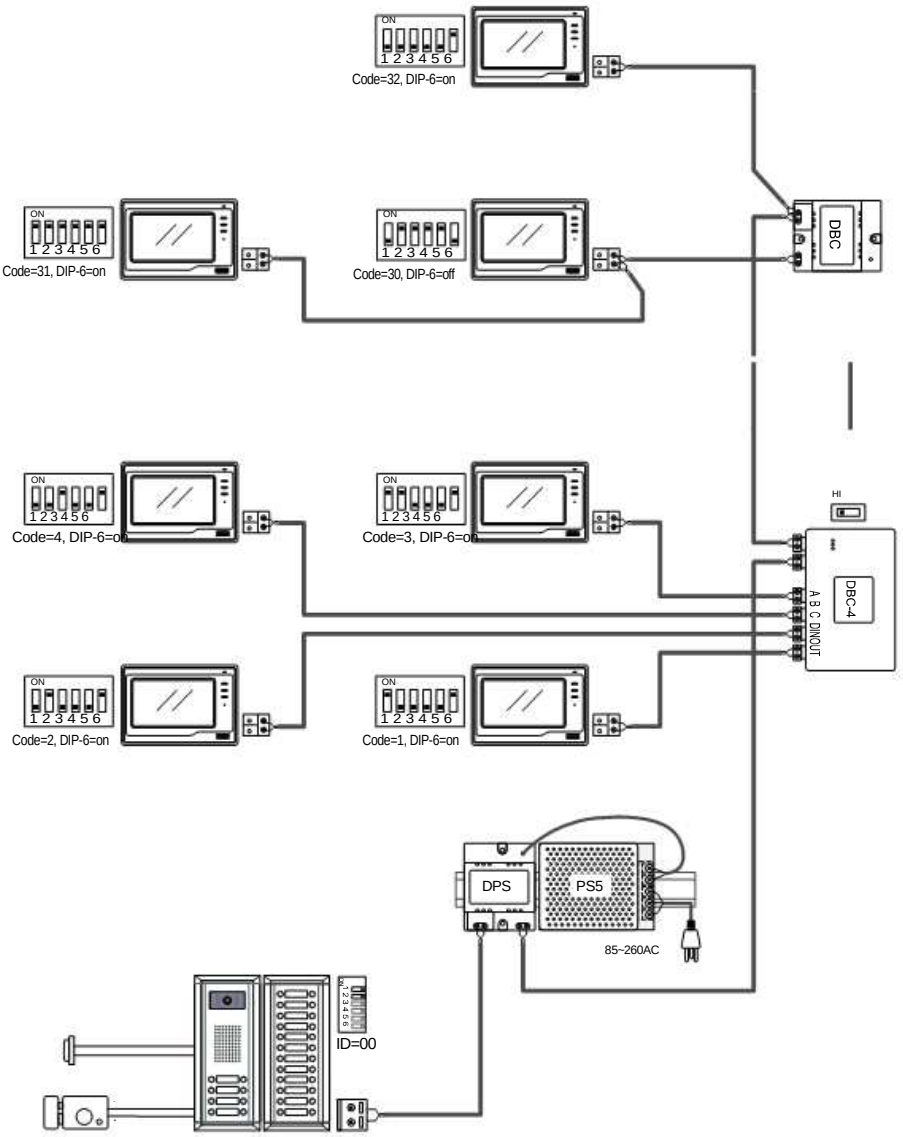
5. 4 Door Stations and star wiring mode



6. 1 Door Station and 2 CCTV cameras



7. Mixed 1/4 user distributors wiring



Calls and busy state are managed according to the programmed system times

- Pick-up waiting time: this is the duration from when a call is made from a Door Station to when the called Monitor is picked up; the system will cut off the call after this period of time.(the default setting is 30 seconds)
- Maximum talking time: this is the duration time that the indoor user can talk to the out door visitor. After this period the conversation will be cut off automatically by the system to free the line.(the default setting is 90 seconds)
- Maximum intercom time: this is the duration time that the indoor user can talk to the other indoor user when having an intercom conversation. After this period the conversation will be cut off automatically by the system to free the line.(the default setting is 30 seconds)
- Maximum monitoring time: this is the duration time that the indoor user can monitor (surveillance) via the Door Station or CCTV camera, when press the Monitor button on the Monitor.(the default setting is 30 seconds)
- Busy time: this indicates the period when a door unit cannot place calls because a previous call or conversation is in progress.(maximum busy time = pick-up waiting time + maximum talking time)

The system works as follows when a Door Station call is made

- A call from any Door Station switches the entire system to pick-up waiting time mode (30 seconds). Busy state is prolonged (maximum talking time). The system returns to standby mode at the end of the conversation or after the timeout.
- An intercom call switches the Door Station(s) to busy mode for the pick-up time(30 seconds). When the called user picks up, busy state is prolonged for other 60 seconds (maximum intercom time). The Door Station(s) return to standby mode at the end of the conversation or after the timeout.
- It can be interrupted by the Door Station call when the Monitor is in intercom pick-up waiting time or in intercom conversations
- A intercom call or a monitor(surveillance) operation will not affect the system busy state. Intercom call will be ignored by the system when a Door Station call is calling or a Door Station talking is in process.
- The door bell call button call will not affect the rest of the system, but will interrupt the called Monitor if the Monitor is in monitoring(surveillance) or in intercom talking.
- Door Station call has the highest priority, monitor(surveillance) operation comes next, and the intercom operation has the lowest priority.

When door statin call or Door Station conversation is in process, the rest of the Monitors in the system will be turn into busy state, the busy LED on the Monitor will turn into red, and the screen of the Monitor can not be opened, have to wait until the call or conversation is over.

Note that all the timings mentioned here can be change by the DT CONFIG software, which is included in the product. See the DT CONFIG software in section 5.

Door Station Function

1. Call Forwarding:

Every call button on the Door Station has a button ID,which is associated with a Monitor ID(Monitor address or code). When a call button is pressed on a Door Station:

- Door Station free: the Door Station will output the call forwarding tone (a long beep(Di~) in every 3 seconds) and the nameplate light will blink. The Door Station will output an end of conversation tone at the end of the communication.
- Door Station busy: the Door Station will output a warning tone (4 short beeps). Press the call button again when busy mode ends.

2. Electronic Lock Management

There are two ways for the electronic lock management:

- Directly connect to the Door Station(connect to the GND and COM terminal), the Door Station supply power to the lock. In this case, the lock must be rated less than 12Vdc, 300mA.
- Use separated power supply for the electronic lock, only use the relay contact to control the lock. In this case, wide range of lock can be used in the system. All lock less than 48Vdc, 1.5A can be supported.

The lock will be controlled in two ways:

- When a door open command is received from the Monitor, the lock is activated.
- When the exit door open button is pressed, the lock is activated.

3. Camera Auto-Switching

When multi Door Stations are installed in the system, the Monitor can surveillance the outside via Door Station or CCTV camera, and the video will automatically switch from the first Door Station to the last Door Station. Note that the duration for each Door Station should be set by the DT CONFIG software to enable the Auto Switching function .

- The surveillance time can be set by the computer using the DT CONFIG software.
- Maximum 6 cameras can be supported.
- A DCU part is needed to connect to the CCTV cameras.

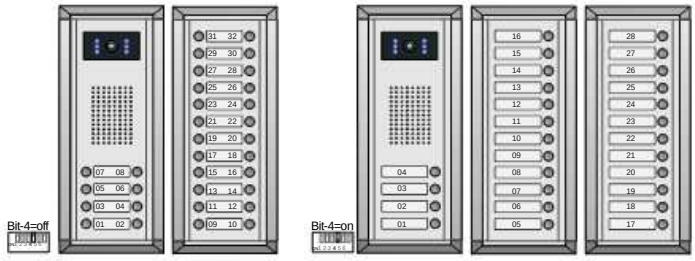
What's User Code

In 2-wire DT system, each Monitor installed in system must be programmed with a calling address or calling number, which is User Code.

For Monitor, User Code is defined by 1~5 bits DIP switchers on the connection board, according the User Code rules. For example, if you want to program the Monitor's User Code to be "03", the Monitor's 1~5 bit DIP switchers should be set as: ON, ON, OFF, OFF, OFF(please refer to User Code table at section2-Monitor).

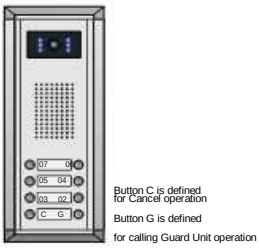
For Door Station, each Call Button on panel is assigned to a specified User Code, and press this button will call related Monitor. For example, press the call button labeled as "03", system will launch a call to the Monitor which programmed with "03" User Code. **Note** that the Bit-4 of the DIP switches on the Door Station should be set to OFF for Double line button Door Station, set to ON for Single line button Door Station.

The User Code array on panels has been pre-defined as below, that's the default mapping as follow:



However, the User Code mapping of Call Buttons can be changed, so as to meet the need of complex required installations. To program the Door Station User Code mapping, you have to use DT-CONFIG software to program each Door Station, by editing User Code, and download. Please see related contest for reference.

For example, when Call button of Guard Center and Cancel button are needed, User Code mapping may be:

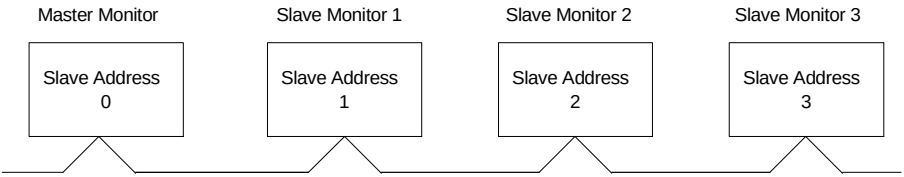


In another installation example, 2 Door Stations are installed and need to be setup as below:

What's Slave Address

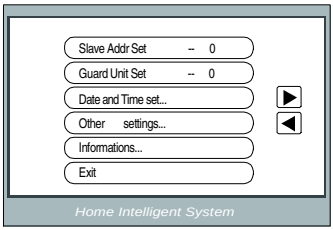
2-wire DT system is capable of connecting up to 4 Monitors in one apartment, which means they will have the same User Code, and will be called simultaneously. In this condition, the Monitors should be programmed as below:

- 1. All the Monitors of same apartment must be programmed with the same User Code on the DIP switches.
- 2. There is only one master Monitor in the one apartment, and the Slave Address of the master Monitor is set to 0. Each Slave Monitor should be set from 1~3.
- By default, Monitor's Slave Address is pre-set to 0(master Monitor).
- When Door Station calls, only the master Monitor will turn on the screen, the slave Monitor will only ring.



Please note, when called by Door Station, all Monitors will ring, however, only the Monitor which Sub User Code was programmed to 0 will turn on the screen.

Programming Slave User Code is by means of Monitor Menu, in the Main-- > Setup-- > Advance Set page(a password will be required before enter the setting, the password is: **2008**), operate as below:



- The Slave Addr Set item is for the master and slave user code setting, default is set to 0 for master user code. It can be change to 1, 2 or 3.
- The Guard Unit Set item is for Guard Unit Monitor setting, the default it set to 0, if set to 1, this Monitor is become a Guard Unit Monitor.

Online search

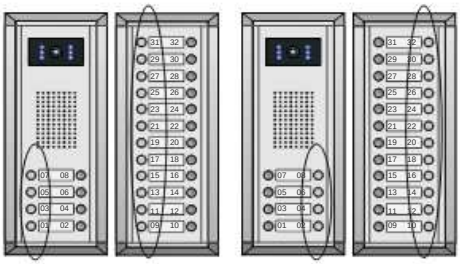
Online search function is designed for the purpose of getting a quick view of the Monitors installing situations, or to check if each of them works or not. This is very useful for installation maintain. There are 3 different ways to use the Online Search function, manually search, use the ID tab and use the DT CONFIG software.

When the Online search is acting, the Door Station will search every Monitor with the User Code from 1 to 32. If the Monitor is one line(work normally), the LED light of that button will light up, and one 'Di~' sound hit will be heard; if the Monitor is off line(disconnected or malfunctioning), the LED light of that button will not light up, and a 'Di,Di,Di' sound hit will be heared. After 32 Monitors all be searched, the Monitor will quit out automatically, or press PB button to abort the searching.

1. Manual search

To execute searching, just press PB button(or hold it for 3 seconds) on Door Station Connection Board, the Door Station will start searching, and the result is shown by lighting the related Name Label backlight with sound tips. After 5 seconds, Door Station returns to normal.

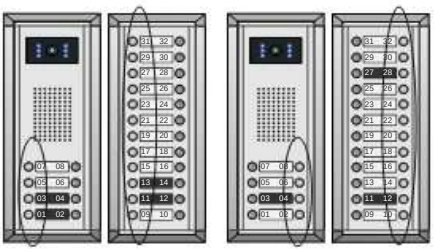
- Press the PBbutton, will search the Monitors in the right Call Buttons column.
- Press the PB button and hold for 3 seconds, will search the Monitors in the left Call Buttons column.



PB button for 3 seconds
Online search range

PB button
Online search range

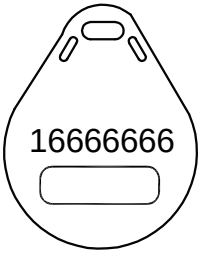
For Example, if 01, 03, 04, 11, 12, 13, 28 Monitors are installed and work correctly, the result will be:



press PB button and hold for 3 seconds

press PB button once

2. Use ID tag



The Door Station will be equipped with an *Online search Card* with a card number of 16666666, which is designed for the online search only.

Show the *Online search card* on the card window one time within 3 seconds, the Door Station will start to search the Right column Monitors; show the *Online search card* on the card window twice within 3 seconds, the Door Station will start to search the Left column Monitors

3. Use DT-CONFIG Software

By means of a PC and software, it is easy to run online check, voltage measuring, and to check device properties. Additionally, the debug log can be saved for future reference. Please refer to section 5 DT CONFIG software.

Simulating Call

The simulating call function is designed for the purpose of testing the Monitor's working state, which enable the installer to check a certain Monitor working state by only one person.

Press and hole the Call Button for 2 seconds on any Monitor, the Door Station will call the Monitor automatically, then the installer can answer the call and check if system work properly(such as video, audio etc).

Section5 - DT CONFIG Software

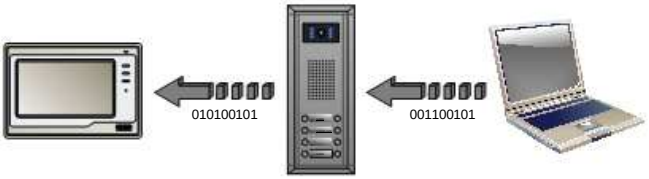
Introduction

DT-CONFIG software is a powerful configuration and debug tool to setup the 2-wire system. As simplified software tools, DT-CONFIG allows installers to check and program Door Stations rapidly, which is especially useful in complex installation.

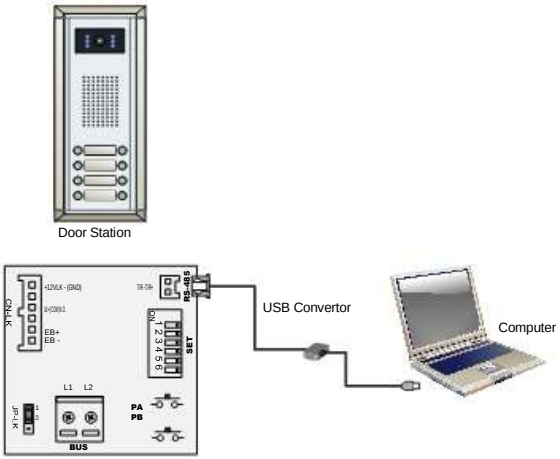
DT-CONFIG allows you to view device properties, modify parameters, re-locate Call Button and establish Name List in a PC and then download to the Door Station. Furthermore, you can use DT-CONFIG as a assistance in field debug and maintains, by means of printing Programming Table, online search and diagnose tools.

DT-CONFIG contains a project management utility, which helps installers manage project and device information.

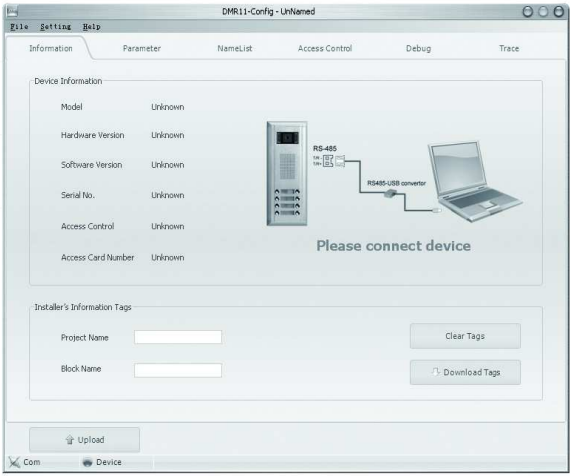
For detail information, please refer to the software document in the CD disk which included in the product.



Hardware connection



1. Main Menu (Information Menu)

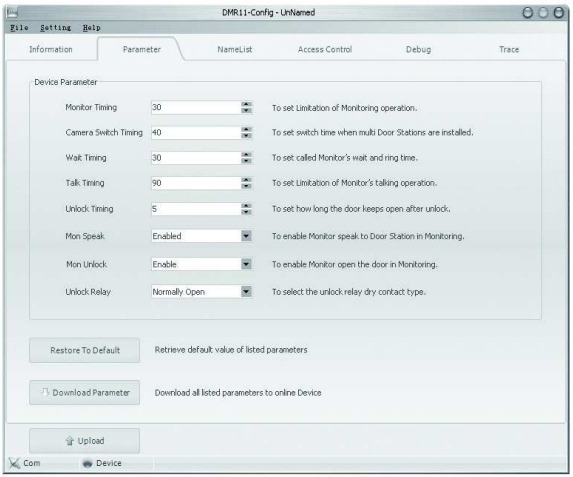


The *Information* tab shows the product *Model*, *Hardware Version*, *Software Version*, *Serial No.* , *Access Control*, *Access Card Number* information.

On the *Installer's Information* tab, user can input the *Project Name* and *Block Name* for this Door Station.

Note: *Series No.* is a unique number programmed in factory and used for tracking. Refer to the software document in the disk for detail information.

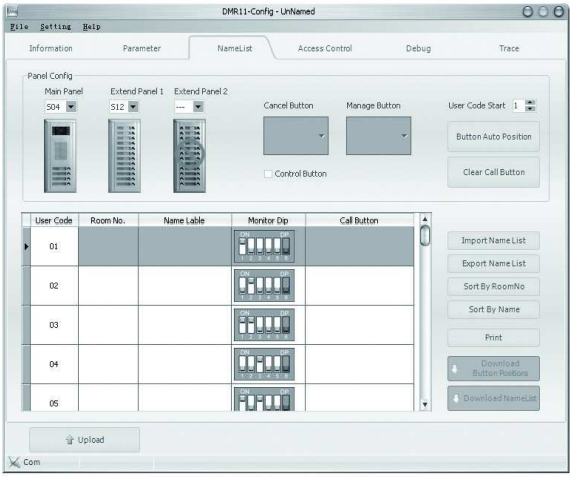
2. Parameters Menu



The Parameter Menu is for the timing settings for the system. it includes the following settings:

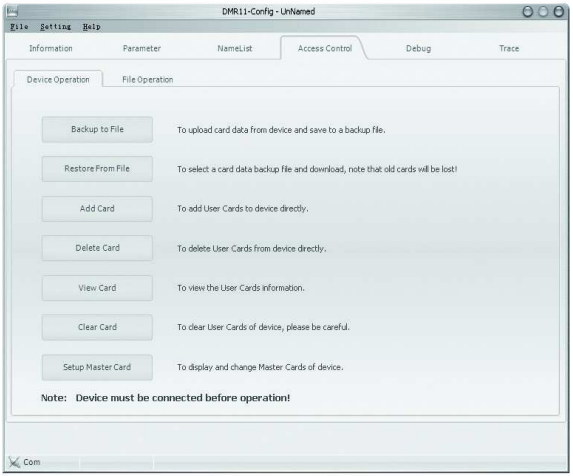
- *Monitor Timing*: For the maximum monitoring time setting.
- *Camera Switching Timing*: The surveillance time for each Door Station or CCTV camera.
- *Wait Timing*: To set call wait and ring time, if Monitor don't answer a call within this time, calling will be canceled.
- *Talk Timing*: Set limitation time of talking.
- *Unlock Timing*: To set the time that how long the door keeps open when lock is released.
- *Mon Speak*: To enable the talking with the Door Station when the Monitor is under monitoring state.
- *Mon Unlock*: To enable the door lock opening operation when the Monitor is under monitoring state.
- *Unlock Relay*: To select the unlock relay mode for different lock types.

3. Name list Setup



This menu is for the name list input and download operations. All user namelist can be input and download to the Door Station and the Door Station will send the namelist to every Monitor in the system.

4. Access Control

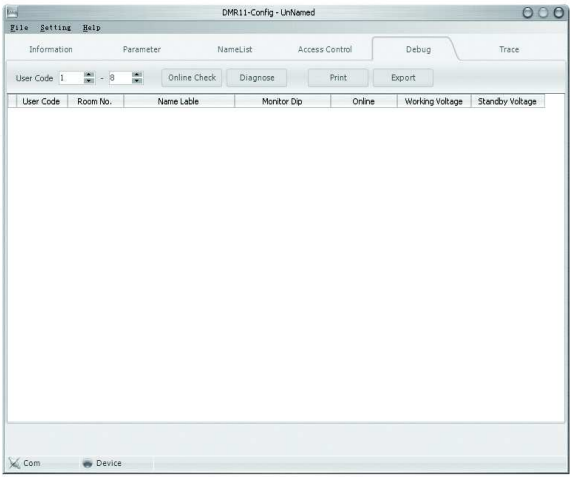

DMR11-Config - UnNamed
File Setting Help
Information
Parameter
NameList
Access Control
Debug
Trace
Device Operation
File Operation
Backup to File
To upload card data from device and save to a backup file.
Restore From File
To select a card data backup file and download, note that old cards will be lost!
Add Card
To add User Cards to device directly.
Delete Card
To delete User Cards from device directly.
View Card
To view the User Cards information.
Clear Card
To clear User Cards of device, please be careful.
Setup Master Card
To display and change Master Cards of device.
Note: Device must be connected before operation!
Com

The *Access Control* tab included two sub tabs, *Device Operation* and *File Operation*.

The *Device Operation* is used to add/delete user cards or master cards. And all the card register information can be save as a backup file, so that the information can be easy recover should any problem happen to the card reader or any wrong operation to the Door Station.

The *File Operation* allows the installer to add ID cards by the software without any operation on the Door Station by input the card numbers and the corresponding User Codes.

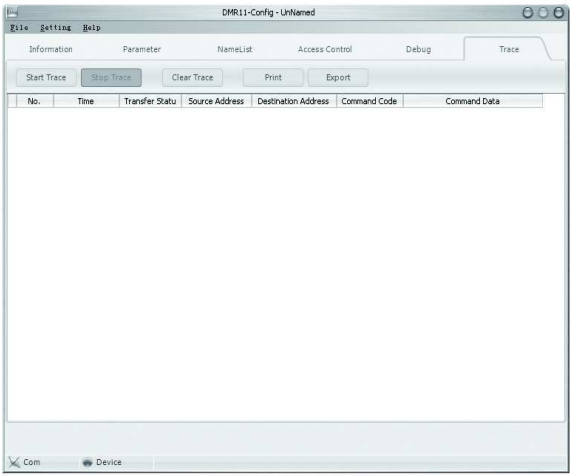
5. Debug Tool


DMR11-Config - UnNamed
File Setting Help
Information Parameter NameList Access Control Debug Trace
User Code 1 - 0 Online Check Diagnose Print Export
User Code Room No. Name Lable Monitor Dip Online Working Voltage Standby Voltage
Com Device

The debug tool is very useful when trouble shoot or maintain the system:

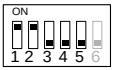
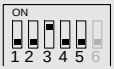
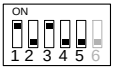
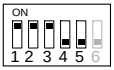
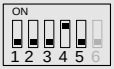
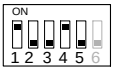
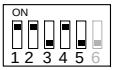
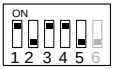
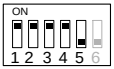
- *User Code Range*: To change the User Code start and end address, only set valid range will save more time.
- *Online Check Button*: Use this button to start Online searching, and the result will be showed in list window.(Online search function is designed for the purpose of getting a quick view of the Monitors installing situations, or to check if each of them works or not. This is very useful for installation maintain).
- *Diagnose Button*: Use this button to start Diagnose operation, and the result will be showed in list window.
- *Diagnose* operation will check the Monitor's working voltage and standby voltage, video signal presentence, and data communication.(By means of this tool, if a Monitor passes the test, generally this Monitor should works well).
- *Print Button*: To print the debug result window information, for installation delivery documentation or memo.
- *Export Button*: To export the results for future usage.

6. Trace Tool

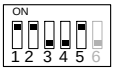
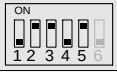
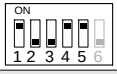

DMR11-Config - UnNamed
File Setting Help
Information Parameter NameList Access Control Debug Trace
Start Trace Stop Trace Clear Trace Print Export
No. Time Transfer Statu Source Address Destination Address Command Code Command Data
Com Device

TRACE tool will display all data communication information presented on 2-wire BUS, which can be a high-end tool used by expertise to check the system stability, or locate the problem more easily in a complex installation. Please note, it is not suitable for normal installers, as the data streams are complex. However, installers can send back the trace log, thus the engineers can analyze and help.

DT User Code Programming Table page1/2

User code	Bit state	Room	Name Label	Remark
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				

DT User Code Programming Table page1/2

User code	Bit state	Room	Name Label	Remark
17				
18				
19				
20				
21				
22				
23				
24				
25				
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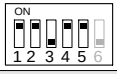
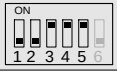
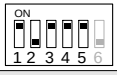
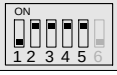
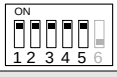
27				
28				
29				
30				
31				
32(00)				

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